Claims 1-4, 7-8, 10, 12-13, and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Werkhoven, et al.* (U.S. Patent Publication No. 2001/400441250) in view of *Jurmann* (U.S. Patent No 5,167,735). The Examiner acknowledges that *Werkhoven, et al.* fails to teach the use of a carrier gas and a purge gas with differing constituents. The Examiner states that *Jurmann* teaches the use of nitrogen or argon as purge gases, and that use of either of these gases with hydrogen or helium as the carrier gas, as taught in *Werkhoven, et al.*, would lead to different constituents being used for the carrier and purge gas.

Applicants submit that there is no motivation to combine *Werkhoven, et al.* and *Jurmann*. *Werkhoven, et al.* describes depositing thin films by atomic layer deposition processes while *Jurmann* describes a deoxidizing pre-treatment of steel before it is annealed. While the deoxidizing pre-treatment of *Jurmann* includes a purging process with an oxygen-free gas such as nitrogen or argon, there is no suggestion or motivation in *Werkhoven, et al.* or *Jurmann* to use the purging process of *Jurmann* in the substantially different process of *Werkhoven, et al.*

The Examiner further states that it would have been obvious to have provided nitrogen or argon as the purge gas along with hydrogen or helium as a carrier gas in *Werkhoven, et al.* in order to take advantage of nitrogen and argon's inertness, low cost and tendency to be trouble free, as taught by *Jurmann*. Applicants submit that the combination of *Werkhoven, et al.* and *Jurmann* does not suggest or motivate a process having a carrier gas and a purge gas with differing constituents. *Werkhoven, et al.* lists hydrogen, nitrogen, argon, and helium as possible carrier gases and teaches the use of nitrogen as a carrier gas in its examples (paragraph 61, paragraph 125). *Werkhoven, et al.* describes purging by continuing the flow of carrier gas. As *Werkhoven, et al.* already teaches the use of nitrogen and suggests the use of argon as both a carrier gas and a purge gas, using nitrogen or argon as a purge gas, as described in *Jurmann*, in the process of *Werkhoven, et al.* does not lead to differing constituents being used for the carrier and purge gas, as asserted by the Examiner.

*Werkhoven, et al.* in view of *Jurmann* does not teach, show, or suggest a method for forming a layer on a substrate disposed in a processing chamber, said method comprising chemisorbing onto said substrate alternating monolayers of a first compound

and a second compound, with said second compound having fluorine atoms associated therewith, with each of said first and second compounds being introduced into said processing chamber along with a carrier gas, purging said processing chamber following chemisorption of each of the alternating monolayers, wherein the purging said processing chamber includes introducing a purge gas therein, and controlling a quantity of said fluorine atoms associated with the monolayer of said second compound as a function of said carrier gas, wherein the purge gas and the carrier gas have differing constituents, as recited in claim 1. Applicants respectfully request withdrawal of the rejection of claim 1, and of claims 2-4 and 7-8, which depend thereon, and allowance of claims 26-27, which depend thereon.

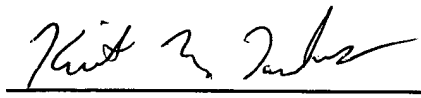
Furthermore, *Werkhoven, et al.* does not teach, show, or suggest a method for forming a layer on a substrate disposed in a processing chamber, said method comprising serially exposing said substrate to first and second reactive gases, with said first reactive gas having a first compound associated therewith and said second reactive gas having a second compound associated therewith, to form alternating monolayers of said first compound and said second compound, with said second compound having fluorine atoms associated therewith, controlling a quantity of said fluorine atoms associated with the monolayer of said second compound by introducing into said processing chamber a carrier gas along with said first and second reactive gases, and purging said processing chamber following chemisorption of each of the alternating monolayers by introducing a purge gas, wherein the purge gas and the carrier gas have differing constituents, as recited in claim 10. Applicants respectfully request withdrawal of the rejection of claim 10 and of claims 12-13, which depend thereon, and allowance of claims 28-29, which depend thereon.

Furthermore, *Werkhoven, et al.* does not teach, show, or suggest a method for forming a layer on a substrate disposed in a processing chamber, said method comprising serially exposing said substrate to first and second reactive gases to deposit monolayers on the substrate, with said first reactive gas having fluorine atoms associated therewith, controlling a quantity of said fluorine atoms associated with the monolayers by introducing into said processing chamber hydrogen ($H_2$) as a carrier gas along with said first and second reactive gases, and purging said processing chamber

following deposition of each of the monolayers by introducing a purge gas, wherein the purge gas and the carrier gas have differing constituents, as recited in claim 23. Applicants respectfully request withdrawal of the rejection of claim 23 and allowance of claim 30, which depends thereon.

In conclusion, the references cited by the Examiner, neither alone nor in combination, teach, show, or suggest the method or apparatus of the present invention. Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



Keith M. Tackett
Registration No. 32,008
MOSER, PATTERSON & SHERIDAN, L.L.P.
3040 Post Oak Blvd., Suite 1500
Houston, TX 77056
Telephone: (713) 623-4844
Facsimile: (713) 623-4846
Attorney for Applicant(s)